

From: Kissinger, Lon
To: ctanaka@sbtribes.com; Eberhardt, Maja; Macchio, Lisa
Subject: RE: WQS questions regarding Se and other question
Date: Friday, September 20, 2019 4:27:27 PM

Hi Candon,

(b) (6) in 15 minutes, but I'll try to answer your questions.

1. 11.3 mg Se/kg of fish and human health concerns associated with fish consumption

These are the monthly 8 oz meal consumption estimates associated with a selenium fish consumption advisory based on EPA methodology. SEE: <https://www.epa.gov/sites/production/files/2018-11/documents/guidance-assess-chemical-contaminant-vol2-third-edition.pdf>

Table 4-4. Monthly Fish Consumption Limits for Noncarcinogenic Health Endpoint - Selenium

Risk Based Consumption Limit ^a	Noncancer Health Endpoints ^b
Fish Meals/Month	Fish Tissue Concentrations (ppm, wet weight)
Unrestricted (>16)	0 - 1.5
16	>1.5 - 2.9
12	>2.9 - 3.9
8	>3.9 - 5.9
4	>5.9 - 12
3	>12 - 16
2	>16 - 23
1	>23 - 47
0.5	>47 - 94
None (<0.5)	>94

^a The assumed meal size is 8 oz (0.227 kg). The ranges of chemical concentrations presented are conservative, e.g., the 12-meal-per-month levels represent the concentrations associated with 12 to 15.9 meals.

^b Chronic, systemic effects.

Notes:

1. Consumption limits are based on an adult body weight of 70 kg and an RfD of 5×10^{-3} mg/kg-d.
2. None = No consumption recommended.
3. In cases where >16 meals per month are consumed, refer to Equations 3-1 and 3-2, Section 3.2.1.2, for methods to determine safe consumption limits.
4. The detection limit for selenium is 17×10^{-3} mg/kg.
5. Instructions for modifying the variables in this table are found in Section 3.3.
6. Monthly limits are based on the total dose allowable over a 1-month period (based on the RfD). When the monthly limit is consumed in less than 1 month (e.g., in a few large meals), the daily dose may exceed the RfD (see Section 2.3).

11.3 mg/kg seems to fall in the range of 4 to 8 meals per month for the advisory. So...you're right, 30 to 60 g/day is not 175 grams per day.

Here's a conversion table of meals per month to grams per day:

Meals/month	g/day
0.5	3.75
1	7.49
2	14.98
4	29.96
8	59.93
12	89.89

16	119.85
32	239.70

2. Relative Source Contribution Terms

I think that you could potentially come up with RSCs other than the recommended default values. Many of the RSCs use a default assumption of 0.2. I believe that a major research area for EPA is to come up with actual data to support derivation of RSCs.

Happy to chat when I get back...

Lon Kissinger

Risk Assessor

206-553-2115

Office of Environmental Review and Assessment

U.S. EPA Region 10

1200 6th Avenue

Seattle, WA 98101

From: Candon Tanaka <ctanaka@sbtribes.com>

Sent: Friday, September 20, 2019 3:33 PM

To: Eberhardt, Maja <eberhardt.maja@epa.gov>

Cc: Kissinger, Lon <Kissinger.Lon@epa.gov>

Subject: WQS questions regarding Se and other question

Hello Maja,

Thanks for the previous emails on the selenium calculation and the other HHC calculations. I have the following questions that need clarification:

1. The selenium issue I was talking about is regarding the aquatic life criteria for Se which draws out a skinless, boneless filet (muscle) concentration of 11.3 mg/Kg dw and the fact that if you put that number through EPA's risk-based consumption equation, that concentration is too high to consume fish at a 175 g/day rate. I have attached a document that details the calculations I used. The EPA HHC is a water column number. Is there a way to address this through a footnote of some type or am I looking at this the wrong way. The point I'm trying to make is, I have had specific questions from our Fish and Wildlife Department asking if the 11.3 mg/Kg dry weight is safe to consume and based on the calculations I can come up with it is not. The problem is clouded by the fact that the HHC is a water column number.
2. Is it allowable to use different RSCs for different chemicals?

Thanks,

Candon Tanaka

Water Quality Specialist

Shoshone-Bannock Tribes

Phone: (208) 239-4582

Fax: (208) 239-4592